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2012/11/01 : CIA-RDP79B00873A000100010147-1

MEMORANDUM FOR:

**IMAGE ANALYSIS PROGRAM**  
**3 SEPARATE EXPERIMENTS**  
**WITH EMULSION N-2-0056**

**16 Aug 1968**  
(DATE)

*James H. Anderson, Jr.*

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1 August 1968

25X1

TITLE: Image Analysis Program

Report No. TO-B 67-20 on Image Analysis

25X1

21 April 1967

WORK PROGRAM: Infectious Development Experiment: Consisting Of Counting The Silver Halide Crystals (Singles and In Clumps) In Exposed Undeveloped Sub-Mono Grain Layer Model Emulsion Number N-2-0056.

MORE SPECIFICALLY

1. Photographed undeveloped film samples, from emulsion N-2-0056, under high magnification (1700x) and took a sufficiently large number of frames to encompass 9560 grains.

Micrographs were printed high contrast in the positive form on 8 x 10 inches D.W. Matt Photo Paper.

2. Determined how many single isolated grains there are and how many grains are situated in clumps by actually counting:

A. average total grains in all the eleven 8 x 10 photo prints (870 grains)

B. Average isolated single grains in all the eleven frames. (121 single grains)

C. Subtracted average total of single isolated grains from average total of all grains to yield total of grains in clumps. (749 in clumps)

D. Calculate average isolated singles as a percentage of average total grains counted in each 8 x 10 print.

121 grains or 14% average isolated single grains counted in a given area. (8" x 10" Photo print at 1700X)

3. See attachment 1.

1 August 1968

25X1

WORK PROGRAM: Infectious Development Experiments Consisting Of Counting  
The Silver Halide Crystals (Singles and In Clumps) In  
Exposed Undeveloped Sub-Mono Grain Layer Model Emulsion  
Number N-2-0056.

Photomicrograph Plate Number	Silver Halide Isolated Single Crystals	Silver Halide Isolated Single Crystals	Silver Halide Crystals in Clumps	Silver Halide Crystals in Clumps
Number	Count	Per Cent	Count	Per Cent
1	112	13%	729	87%
1-A	130	16%	670	84%
2	123	15%	712	85%
3	120	14%	762	86%
4	108	13%	750	87%
5	120	13%	784	87%
6	130	14%	763	86%
7	134	15%	786	85%
8	113	14%	712	86%
9	110	13%	761	87%
10	126	14%	805	86%
Total 11 Plates	1326 Singles		8234 In Clumps	
Averages	120.6	14%	748.6	86%

**TITLE:** Image Analysis Program

Report No. T0-B 67-20 on Image  
April 1967

25X1

### PROCEDURES :

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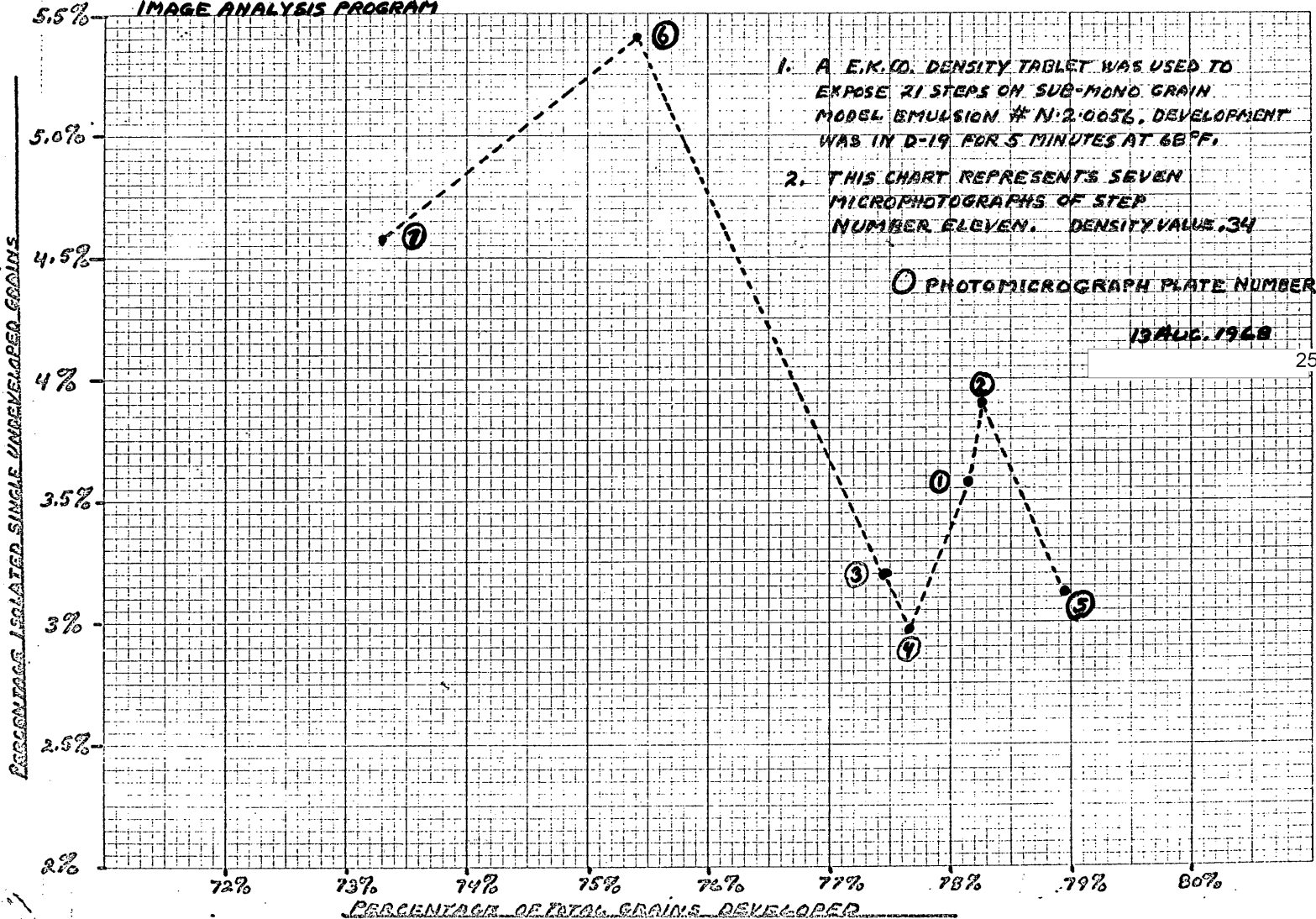
**ATTACHMENT #1****IMAGE ANALYSIS PROGRAM****13 AUG. 1968**

25X1

PHOTOMICROGRAPH PLATE NUMBER	21 STEP TABLET DENSITY STEP NUMBER	DENSITY READING	TOTAL UNDEVELOPED GRAINS COUNTED IN A GIVEN AREA AT 1700X.	TOTAL ISOLATED SINGLE UNDEVELOPED GRAINS COUNTED IN A GIVEN AREA AT 1700X.	TOTAL AVERAGE GRAINS COUNTED IN A GIVEN AREA AT 1700X. EMULSION #N20056 UNDEVELOPED RAIFILM.	TOTAL DEVELOPED GRAINS IN A GIVEN AREA AT 1700 X.	PERCENTAGE ISOLATED SINGLE UNDEVELOPED GRAINS COUNTED IN A GIVEN AREA AT 1700X.	PERCENTAGE OF TOTAL GRAINS DEVELOPED IN A GIVEN AREA AT 1700 X.
1.	11.	.34	190	31	870	680	3.56%	78.16%
2.	11.	.34	189	34	870	681	3.90%	78.22%
3.	11.	.34	196	22	870	674	3.21%	77.47%
4.	11.	.34	177	26	870	693	2.98%	77.65%
5.	11.	.34	183	31	870	687	3.44%	78.76%
6.	11.	.34	214	47	870	656	5.40%	75.46%
7.	11.	.34	232	40	870	638	4.59%	73.03%

**EMULSION #N-2-D056****D-19 5MIN. 68°F.**

IMAGE ANALYSIS PROGRAM



9 August 1968

25X1

TITLE: Image Analysis Program

Report # TO-B 67-20 on Image Analysis  
dated 21 April 1967

25X1

WORK PROGRAM: Carry Out Infectious Development Experiments Consisting of Counting The Undeveloped Silver Halide Crystals Remaining In an Exposed, D-19 Developed, Unfixed, 21 Step Tablet of Sub-Mono Grain Layer Model Emulsion Number N-2-0056

PROCEDURE:

1. Make photomicrographs and print on 8 x 10 matt paper at 1700x most steps of a 21 step density tablet of sub-mono grain layer model emulsion number N-2-0056, that has been exposed to the light of a sensitometer, developed in D-19 for 5 minutes at 68°F, treated with Eastman Kodak Co. short stop solution, washed thoroughly in running water for 30 minutes, with 3 minutes immersion in E.K. Co. Photo Flo Solution and hung up to dry (without swabbing). This special film is not fixed in the usual hypo clearing solution.
2. Ignoring totally black grains, count total number of single (isolated) undeveloped grains and then the total number of undeveloped grains. Express the singles as a percentage of the total.
3. Plot percent singles as some function of exposure. Plot percent singles as a function of the percentage of all grains developed.
4. Any change in percent singles represent a development bias which arises from their difference in environment. The difference is a measure of the infectiousness of development.

Work To Follow The Above Experiment:

Two additional step tablets were exposed identically to that mentioned above. One was developed in D-11 for 6 min. at 68°F and one was developed in D-8 for 3 min. at 68°F. Similar photomicrographs will be made of each of these step tablets and counted as outlined above to relate infectiousness to specific aspects or types of developer.

See Attachment 1 and 2.

## IMAGE ANALYSIS EXPERIMENT EMUL. #N-2-0056

PHOTOMICROGRAPH PLATE NUMBER	21 STEP TABLET DENSITY STEP NUMBER	DENSITY READING	TOTAL UNDEVELOPED GRAINS COUNTED IN A GIVEN AREA AT 1700X	TOTAL ISOLATED SINGLE UNDEVELOPED GRAINS COUNTED IN A GIVEN AREA AT 1700X	TOTAL AVERAGE GRAINS COUNTED IN GIVEN AREA AT 1700X. EMULSION N-2-0056 UNDEVELOPED RAW FILM.	TOTAL DEVELOPED GRAINS IN A GIVEN AREA AT 1700X.	PERCENTAGE ISOLATED SINGLE UNDEVELOPED GRAINS COUNTED IN A GIVEN AREA AT 1700X.	PERCENTAGE OF TOTAL GRAINS DEVELOPED IN A GIVEN AREA AT 1700X.
11	4	.27	560	80	870	310	9.19%	36%
11-A	4	.27	512	84	870	348	9.65%	40%
12	5	.28	381	75	870	479	8.64%	55%
12-A	5	.28	485	95	870	375	10.91%	43%
13	6	.29	484	77	870	386	8.85%	44%
13-A	6	.29	453	68	870	417	7.81%	48%
14	7	.30	304	64	870	566	7.35%	65%
14-A	7	.30	400	90	870	470	10.33%	54%
15	8	.31	309	72	870	561	8.26%	64%
15-A	8	.31	393	86	870	477	9.88%	55%
16	9	.32	280	70	870	590	8.04%	68%
16-A	9	.32	302	58	870	568	6.66%	65%
17	10	.33	244	40	870	626	4.59%	72%
17-A	10	.33	244	44	870	626	5.05%	72%
18	11	.34	215	35	870	655	4.02%	75%
19	12	.35	160	36	870	710	4.13%	82%
20	13	.36	131	21	870	739	2.41%	85%
21	14	.37	138	16	870	732	1.83%	84%
22	15	.38	101	11	870	769	1.26%	88%
23	16	.39	59	6	870	811	0.68%	93%



